

64 *Mr. Knott, on the Variable Star R Vulpeculæ.*

This agrees nearly with Lieut. Raper's position: he gives the centre of the island $= 114^{\circ} 37'$. The island extends about three miles E. and W.

Forty-seven lunar distances from the Sun, viz. 31 W. and 16 E., gave the chronometer an error of $2^m 51^s$ slow at the time of occultation, which would assign nearly the same value for the longitude of the island as given above.

The chronometer had a steady rate of $1^s.6$, losing for about seventy days.

On the Variable Star R Vulpeculæ. By G. Knott, Esq.

From a comparison of my own observations with Mr. Pogson's useful Ephemeris, I had been led to suspect some irregularity in the period of this star, and in a short paper, which was printed in the last volume of the *Monthly Notices*, I communicated my suspicions to the Astronomical Society. The paper appears to have come under the notice of Dr. Winnecke of Pulkowa, who, by his observations and researches, may almost be said to have made the star his own, and in a letter to the Rev. R. Main (*Monthly Notices*, vol. xxii. No. 8), adverting to the subject he remarks that he was afraid that an error of transcription had crept into the elements he communicated to Mr. Pogson, and proceeds to give his definitive epoch and period founded on "seven maxima, observed in the course of three years, with reference to Piazzi's estimations of magnitude in August 1803," together with an Ephemeris for the years 1861, 1862. My own observations of two maxima present so fair an accordance with Dr. Winnecke's predictions, that I venture to submit them to the Society, in the hope that they may possess some interest. My final results are as follow:

Observed maxima of R *Vulpeculæ*, 1861, December 30.5 mag. = 8.7. 1862, October 4, mag. = 8.2, being later than the calculated dates by $3\frac{1}{2}$ and 4 days respectively, a difference which may possibly be due to *personal equation*. The period deduced from these observations, viz. 138.75 days, presents also a very satisfactory agreement with that given by Dr. Winnecke, and I think we may fairly infer that R *Vulpeculæ* belongs to the class of regular variables.

Woodcroft Observatory, Cuckfield,
November 17th, 1862.

Description of a New mode of obtaining the Value of the Divisions of a Transit Level. By Capt. W. Noble.

I have recently been occupied in re-determining the value of the divisions of my Transit Level, by a method which, while

it involves no new principle, is, I believe, in detail perfectly original.

The Level, the value of whose divisions was to be determined, was in the first place lashed securely to the declination circle of my Equatoreal. The micrometer having been screwed into the eye end of the telescope, the wires were separated by some known number of seconds of arc. The instrument being now firmly clamped in the meridian, the telescope was so adjusted that a star not very far from the equator should, during its transit, run along and be threaded by the *top* wire of the micrometer. Just before the star entered the field the level was carefully read. As the star approached the middle of the field the telescope was depressed by means of the tangent screw of the declination circle, until the star ran along the *bottom* wire of the micrometer, whereupon the level was again read immediately. The number of seconds of arc through which the telescope, declination circle, and level, had been moved, was of course that of the interval between the micrometer wires, and this, divided by the number of divisions passed over by the level bubble, gave the value of one division.

The possessor of a large meridian circle would doubtless find that the ordinary mode of lashing his level to this circle and of reading the arc passed over by means of the circle microscopes, would be more accurate and expeditious; but to those who like myself possess only an Equatoreal, I would commend my method as susceptible of very considerable precision.

I may, in conclusion, mention merely as a fact, without attempting to account for it, that I invariably obtained a larger value for the divisions of the level scale from daylight observations, than I did from those made at night.

*Forest Lodge, Maresfield, Sussex,
November 12th, 1862.*

Results of the Meridional Observations of Small Planets; Occultations of Stars by the Moon; and Occultation of Jupiter's Second Satellites; observed at the Royal Observatory, Greenwich, in October and November, 1862.

(Communicated by the Astronomer Royal.)

Themis (24).

Mean Solar Time of Observation.			R.A. from Observation.			N.P.D. from Observation.			
	h	m	s	h	m	s	°	'	"
1862, Oct. 29	13	3	52.2	3	36	15.10	70	21	4.09
Nov. 27	10	46	17.8	3	12	38.23	71	40	47.37